

Claims

- [c1] 1. A dynamic mask module adapted to transfer a mask pattern to a photo-resist on a substrate, the dynamic mask module comprising:
a microcomputer system;
a mask pattern generator disposed over the substrate and electrically connected to the microcomputer system, wherein the microcomputer system transmits an image signal of the mask pattern to the mask pattern generator for generating pluralities of opaque areas and transparent areas and outputting the mask pattern; and
a light source disposed over the mask pattern generator, light of the light source projecting on the opaque areas and transparent areas for transferring the mask pattern to the photo-resist.
- [c2] 2. The dynamic mask module of claim 1, further comprising a focusing lens disposed between the mask pattern generator and the substrate adapted to minify or magnify the mask pattern.
- [c3] 3. The dynamic mask module of claim 1, wherein the mask pattern generator is a transmissive LCD or a DLP optical projector.

- [c4] 4. A method for generating a dynamic mask pattern, comprising:
providing a single-layer contour pattern having an outside contour and at least one inside contour;
identifying the outside contour and the inside contour;
establishing a figure window and filling color therein;
establishing the outside contour and the inside contour and filling color therein; and
sequentially attaching the outside contour and the inside contour filled with color to the figure window for forming a mask pattern.
- [c5] 5. The method for generating a dynamic mask pattern of claim 4, further comprising transferring the mask pattern into an image signal and transmitting the image signal to a mask pattern generator for generating pluralities of opaque areas and transparent areas and outputting the mask pattern.
- [c6] 6. A layer process, comprising:
(a) providing a substrate;
(b) forming a photo-resist layer on the substrate;
(c) transmitting an image signal of a mask pattern from a microcomputer system to a mask pattern generator, the mask pattern generator outputting the mask pattern;
(d) performing an exposure step for transferring the

mask pattern to the photo-resist layer; and
(e) performing a development step for removing a portion of the photo-resist layer and forming a patterned photo-resist layer as same as the mask pattern.

- [c7] 7. The layer process of claim 6, after step (e) further comprising:
- (f) forming a supporting layer on the patterned photo-resist layer for planarizing the patterned photo-resist layer;
 - (g) forming another photo-resist layer on the supporting layer;
 - (h) transmitting an image signal of another mask pattern from the microcomputer system to the mask pattern generator, the mask pattern generator outputting the another mask pattern;
 - (i) performing another exposure step for transferring the another mask pattern to the another photo-resist layer;
 - (j) performing another development step for removing a portion of the another photo-resist layer and forming another patterned photo-resist layer as same as the another mask pattern; and
 - (k) removing the supporting layer.

- [c8] 8. The layer process of claim 7, before step (k) further comprising at least repeating steps (f)–(j) once.

[c9] 9. The layer process of claim 6, wherein a light source serving the exposure step is a point light source or a surface light source; when the light source is a point light source, the method further comprises modifying a gray level of the mask pattern outputted from the mask pattern generator for generating a gray level of a central area of the mask pattern less than that of a field area thereof.

[c10] 10. The layer process of claim 6, wherein a light source serving the exposure step is a point light source or a surface light source; when the light source is a point light source, the method further comprises temporarily turning off a transparent area within a central area of the mask pattern generator for unifying exposure energy.